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Assessment of Risk Behaviors and Sex-Seeking Practices among Male Active Duty Sailors and Marines Infected with HIV, 2010-2017

The EpiData Center
Prepared April 2018
NMCPHC-EDC-TR-208-2018

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Background

Since 1985, the Department of Defense (DOD) has promoted routine testing for human immunodeficiency virus (HIV) among United States (US) military applicants, active duty service members, and reserve personnel to ensure physical fitness and protect the battlefield blood supply. Routine testing first detected prevalent and incident infections; however, longstanding screening procedures are presently presumed to detect recently acquired HIV infections in active and reserve component service members.[1] Military healthcare providers screen applicants for HIV during pre-accession medical examinations and HIV infection is a medically disqualifying event for entry into service. The DOD mandates screening for members of the active and reserve components every two years to detect newly acquired infections, and screening at pre- and post-deployment medical exams has been a standard requirement for over a decade. Individuals in active and reserve components who test positive for HIV are not retired or separated solely on the basis of infection and may serve in a manner that ensures access to appropriate medical care.[2]

Among active component Department of the Navy (DON) service members, HIV seroprevalence rates were 32 per 100,000 tested Sailors and 14 per 100,000 tested Marines during the period between 2012-2017.[1] Military providers evaluate those who test positive at one of three designated HIV Evaluation and Treatment Units (HETUs) to determine the medical status of their infections. The HETUs are located at Walter Reed National Military Medical Center (WRNMMC) in Bethesda, MD, Naval Medical Center (NMC) Portsmouth, VA, and NMC San Diego, CA.[3,4] In February 2010, the DON Bureau of Medicine and Surgery (BUMED) initiated a standardized process for reporting HIV exposure and risk data collected by each HETU to the Navy and Marine Corps Public Health Center (NMCPHC), with the purpose of conducting ongoing behavioral risk surveillance to inform prevention programs and engage local military treatment facilities (MTFs) in outbreak investigations.[4]

Before the repeal of the DOD ‘Don’t Ask, Don’t Tell’ (DADT) policy in September 2011, military service members were prohibited from disclosing same-gender sexual orientation;[5] however, Secretary of the Navy Instruction (SECNAVINST) 5300.30E, published in August 2012, specifies that information obtained from service members for epidemiological assessment interviews, counseling, or medical treatment may not be used for adverse personnel action.[2] Despite the instruction to provide for epidemiological assessments, limited behavioral surveillance has been available to assess risk factors for HIV acquisition among newly diagnosed Sailors and Marines.

Due to the lack of standardized behavioral surveillance to assess risk factors among active duty DON members newly diagnosed with HIV, a behavioral reporting process was proposed and advocated by the NMCPHC Sexual Health and Responsibility Program (SHARP) and established by BUMED in 2010. The process provides data on HIV-related risk behaviors and sex-seeking practices among individuals recently diagnosed with HIV. The first assessment was completed in 2014 based on data collected from 2010 through 2013; data for 2014-2015 was added in 2016. Based on the report for 2010-2016, the highest frequencies of reports were among black men and those aged 17-24. The most common risk behavior was male sexual contact and the most common sex-seeking practice was using the internet to meet partners.

This assessment is an update to the original and subsequent reports, building upon the data to include case reports for 2017, for a total study period of 2010-2017. The analysis may inform Navy and Marine Corps HIV prevention and health education efforts, including SHARP, which provides training, products, and program guidelines for use across the DON.[6]

Methods

Screening and Reporting Procedures

The DON mandates routine HIV screening for active duty and reserve personnel every two years.[2] According to the Navy Bloodborne Infection Management Center (NBIMC), Sailors and Marines are screened with Food and Drug Administration (FDA) approved tests; those who initially test positive for HIV infection are medically evaluated at a designated HETU to determine the medical status of their infections. If the diagnosis is confirmed by a repeat verification specimen obtained at the HETU, medical personnel complete the standardized HIV case report form from the Centers for Disease Control and Prevention (CDC).[4,7] Although the SHARP standardized case reporting process did not officially begin until 16 February 2010, NMCPHC received some case forms beginning in January 2010, which were included in the analysis. A new case report form was adopted for use in 2015. The new form contains several changes, including an elimination of risk behavior questions at the 3-month time period, the addition of questions related to condom use, the addition of questions related to sex with a transgender partner, and a reordering of questions on parts of the form. Of the 727 active duty Sailors and Marines diagnosed between 2010 and 2017, NMCPHC received case report forms for approximately 76%.[8]

Trained Navy preventive medicine technicians collect patient data during in-person private interviews at the HETUs immediately following a confirmatory diagnosis. While personnel may voluntarily answer questions regarding sexual risk behaviors or partner information, all case report forms include involuntary, non-identifiable information regarding demographics, location of the interview, and date of first HIV-positive test. The EpiData Center (EDC) created a secure database for transcription of the case forms, which contain no personally identifiable information (PII) and thus did not require a Systems of Records Notice (SORN). The EDC implemented internal quality assessment processes to ensure accurate translation of data from paper to electronic system.

Study Population

The final cohort was limited to male active duty Sailors and Marines who completed a HIV case report form from 2010 through 2017, in order to focus on risk behaviors by sexual orientation. Reports with the following attributes were excluded: reservists, female sex at birth or transgender, and missing interview dates. Those whose records did not specify a sex at birth but reported male gender on the case form were also included in the cohort for a total of 535 active duty personnel.

Analysis

Missing data for demographic and risk factor variables were recoded as “unknown.” Additional recoding was implemented as a quality assurance measure to address limitations with data collection errors and bias. For example, if respondents reported having sex within the past three months but did not report having sex within the last 12 months, the 12-month variable was recoded to reflect the three-month variable. Only the 12-month risk factors were assessed in the final analysis; the new version of the form (adopted in 2015) has questions regarding only 12-month risk factors. Recoding was implemented for free text variables, such as interview facility and service/duty status information, to create consistent groups. The case form defined “sex” act as engaging in oral, anal, or vaginal contact with partners.

The standardized case report form utilized letter codes to identify locations where individuals met and had sex with partners, as well as a field for free text responses. The free text fields were reviewed to ensure all answers were accounted for in the associated letter codes. In several instances, miscoding of letter codes occurred; if the free text field provided indications of the proper code, these codes were corrected. Following review of the individual letter code frequencies listed on the original case form, several categories were combined to provide better context of the locations where respondents met and had sex with partners.

In addition, the case report form documented the number of male, female, and transgender sexual partners in the past 12 months. Respondents who refused to report partner details or reported an unknown number of sexual partners in the past 12 months were excluded from descriptive analysis of the number of sexual partners. Furthermore, respondents who reported having sex within the past three or 12 months but had zero documented partners were also excluded from the analysis for this particular field.

In this report, descriptive analyses of demographics, risk factors, and locations where personnel met and had sex with partners are presented by service to review population differences. The median number and range of sexual partners by service and sexual orientation are presented. Chi-square or Fisher’s exact tests were performed, as appropriate, to analyze bivariate relationships between sexual orientation with demographics, select risk behaviors, and locations where personnel met or had sex with partners. All analyses were conducted utilizing SAS software version 9.4 (Cary, North Carolina).

Results

Demographic Characteristics

Of the cases reported between 2010 and 2017, approximately 41.1% of recently infected HIV personnel were between the ages of 17 to 24 years, 31.4% between 25 to 29 years, 15.9% between 30 to 34 years, and 7.9% were aged 35 or older. The majority (64.9%) had a marital status of single; 23.2% reported marital status of married or partnered; 10.7% reported being divorced, widowed, or separated; and 0.4% reported cohabitation.

The majority of personnel identified as Black or African American (41.5%) or White (39.8%). Personnel also reported several other race categories: Asian (4.3%), American Indian or Alaskan Native (4.1%), Native Hawaiian or Other Pacific Islander (1.3%), and combinations of multiple races (1.7%). The majority (78.3%) of Sailors and Marines reported a non-Hispanic ethnicity. Most of the Navy personnel interviews occurred at NMC San Diego (44.0%) and NMC Portsmouth (39.5%); WRNMMC conducted the remaining 16.3% of Sailor interviews. Marines were interviewed primarily at NMC San Diego (66.7%), with fewer interviewed at NMC Portsmouth (26.5%) and eight Marines interviewed at WRNMMC. See Table 1 for details.

Table 1. Age, Race and Marital Status of Male Active Duty Personnel, Recently Infected HIV Positive Sailors and Marines, 2010-2017

	NAVY (N=418)		MARINE CORPS (N=117)		TOTAL (N=535)	
	N	%	N	%	N	%
Age Group						
17 to 24	153	36.6	67	57.3	220	41.1
25 to 29	136	32.5	32	27.4	168	31.4
30 to 34	75	18.0	10	8.6	85	15.9
35 to 39	31	7.4	3	2.6	34	6.4
40+	7	1.7	1	0.9	8	1.5
Unknown	16	2.8	4	3.4	20	3.7
Marital Status						
Single	279	66.8	68	58.1	347	64.9
Married/Partnered	88	21.1	36	30.8	124	23.2
Divorced/Widowed/Separated	46	11.0	11	9.4	57	10.7
Cohabitation	2	0.5	-	-	2	0.4
Unknown	3	0.7	2	1.7	5	0.9
Race						
Black or African American	185	44.2	37	31.6	222	41.5
White	152	36.4	61	52.1	213	39.8
American Indian or Alaskan Native	18	4.3	4	3.4	22	4.1
Asian	21	5.0	2	1.7	23	4.3
Native Hawaiian or Other Pacific Islander	6	1.4	1	0.9	7	1.3
Multiple/Other	8	1.9	1	0.9	9	1.7
Unknown	27	6.5	9	7.7	36	6.7
Refused	1	0.3	2	2.0	3	0.6
Ethnicity						
Non-hispanic	340	81.3	79	67.5	419	78.3
Hispanic	63	15.1	33	28.2	96	17.9
Unknown	15	3.6	5	4.3	20	3.7
Interview Facility						
WRNMMC	68	16.3	8	6.8	76	14.2
NMC Portsmouth	165	39.5	31	26.5	196	36.6
NMC San Diego	184	44.0	78	66.7	262	48.5
Unknown	1	0.2	0	-	1	0.2
TOTAL	**418**		**117**		**535**	

Data Source: NMCPHC SHARP Program

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on March 30, 2018.

Risk Factors

Risk factors during the 12 months prior to diagnosis were evaluated. Reports may contain responses that indicate a refusal to answer or an unknown value for a risk factor. Refusals primarily were found in reports early in the study period and declined likely due to insufficient training provided to personnel administering the reports. Only positive responses are noted in the table below.

Among Sailors and Marines, 66.2% reported sex with a male, 54.6% reported sex with an anonymous partner, 45.2% reported sex with a female, and 33.6% reported sex while intoxicated and/or high on drugs. Few personnel reported exchanging drugs or money for sex (3.9%), having sex with a person known to be an intravenous drug user (IDU) (3.9%), incarceration during the last 12 months (2.4%), or engaging in injection drug use (1.3%).

Approximately 11.4% of personnel specified at least one injection or non-injection drug used during the last 12 months. The most frequently indicated drugs were nitrates/poppers (7.9%). Few personnel reported use of erectile dysfunction drugs (3.9%), methamphetamines (2.4%), or cocaine/crack (1.3%). No personnel reported use of heroin. See Table 2 for additional details.

Table 2. Risk Factors in Past 12 Months for Male Active Duty Personnel, Recently Infected HIV Positive Sailors and Marines, by Service, 2010-2017

	NAVY (N=418)		**MARINE CORPS (N=117)**		**TOTAL (N=535)**	
Risk Factors (Past 12 Months)	**N**	**%**	**N**	**%**	**N**	**%**
Sex with a Male	289	69.1	65	55.6	354	66.2
Sex with an anonymous partner	219	52.4	73	62.4	292	54.6
Sex with a Female	173	41.4	69	59.0	242	45.2
Sex while intoxicated and/or high on drugs	141	33.7	39	33.3	180	33.6
Exchanged drugs or money for sex	16	3.8	5	4.3	21	3.9
Sex with a person known to be an IDU	14	3.4	7	6.0	21	3.9
Been incarcerated	6	1.4	7	6.0	13	2.4
Engaged in injection drug use	3	0.7	4	3.4	7	1.3
Used injection or non-injection drugs (Past 12 Months)	47	11.2	14	12.0	61	11.4
Nitrates/Poppers	32	7.7	10	8.6	42	7.9
Erectile dysfunction drugs	16	3.8	5	4.3	21	3.9
Methamphetamines	10	2.4	3	2.6	13	2.4
Cocaine/Crack	6	1.4	1	0.9	7	1.3

Data Source: NMCPHC SHARP Program

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on March 30, 2018.

Table 3 shows the relationship between the percentage of personnel who indicated sex with a male in the past 12 months, interview facility, and year of the case report.

Table 3. Percent of Male Active Duty Personnel Case Reports Indicating Sex with a Male in the Past 12 Months, Recently Infected HIV Positive Sailors and Marines, by Interview Facility, 2010-2017

	2010	2011	2012	2013	2014	2015	2016	2017
WRNMMC	66.7	18.2	50.0	11.1	81.8	71.4	72.7	69.2
NMC Portsmouth	70.0	70.0	51.7	43.8	68.8	63.3	76.9	61.5
NMC San Diego	90.5	69.0	60.5	67.4	73.0	74.0	77.8	66.7
All	77.8	60.0	56.6	54.4	72.5	70.2	76.1	66.1

Data Source: NMCPHC SHARP Program

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on March 30, 2018.

Based on the national HIV profile, which defines men who have sex with men (MSM) at high risk for infection, demographics and risk factors were stratified by sexual orientation. For both MSM and non-MSM groups, personnel aged 17-24 years had the highest percentage of case reports at 44.4 for MSM and 34.9 for non-MSM. A greater percentage of MSM than non-MSM reported sex with an anonymous partner (57.3% vs. 51.2%), sex while intoxicated or high on drugs (35.0% vs. 32.5%), use of injection or non-injection drugs (13.6% vs 7.8%), or sex with a person known to be an IDU (4.1% vs 2.0%). However, chi-square tests examining MSM status in relation to each risk factor, age group, and race did not detect any significant differences. See Table 4 for additional details.

Table 4. Demographics and Risk Factors in Past 12 Months for Male Active Duty Personnel, Recently Infected HIV Positive Sailors and Marines, by Men Who Have Sex With Men (MSM) Status, 2010-2017

	MSM (N=354)		Non-MSM (N=166)		TOTAL* (N=520)	
	N	**%**	**N**	**%**	**N**	**%**
Demographics						
Age Group						
17 to 24	157	44.4	58	34.9	215	41.4
25 to 29	109	30.8	55	33.1	164	31.5
30 to 34	52	14.7	29	17.5	81	15.6
35 to 39	20	5.7	13	7.8	33	6.4
40+	4	1.1	3	1.8	7	1.4
Unknown	12	3.4	8	4.8	20	3.9
Marital Status						
Single	259	73.2	77	46.4	336	64.6
Married/Partnered	63	17.8	59	35.5	122	23.5
Divorced/Widowed/Separated	29	8.2	27	16.3	56	10.8
Cohabiting	1	0.3	1	0.6	2	0.4
Unknown	2	0.6	2	1.2	4	0.8
Race						
Black or African American	155	43.8	59	35.5	214	41.2
White	124	35.0	85	51.2	209	40.2
American Indian or Alaskan Native	17	4.8	4	2.4	21	4.0
Asian	14	4.0	9	5.4	23	4.4
Native Hawaiian or Other Pacific Islander	6	1.7	1	0.6	7	1.4
Multiple/Other	7	2.0	2	1.2	9	1.7
Unknown	28	7.9	6	3.6	34	6.5
Refused to Answer	3	0.9	0	-	3	0.6
Risk Factors (Past 12 Months)						
Sex with an anonymous partner	203	57.3	85	51.2	288	55.4
Sex with a female	86	24.3	153	92.2	239	46.0
Sex while intoxicated and/or high on drugs	124	35.0	54	32.5	178	34.2
Used injection or non-injection drugs	48	13.6	13	7.8	61	11.7
Exchanged drugs or money for sex	11	3.1	10	6.0	21	4.0
Sex with a person known to be an IDU	13	4.1	3	2.0	16	3.5
Been incarcerated	7	2.0	6	3.6	13	2.5
Engaged in injection drug use	6	1.7	1	0.6	7	1.4

*Fifteen reports were excluded from this table where the question of "Had sex with a male" was either blank or had a response of "refused to answer."

Data Source: NMCPHC SHARP Program

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on March 30, 2018.

Sex-Seeking Practices

Approximately 7.3% of personnel either refused to disclose or had no answer on the case report for the section on locations where partners were met. About half (50.7%) of Sailors and Marines disclosed meeting their sexual partners on the internet; the use of this particular location for meeting sexual partners was similar for Navy (51.0%) and Marine Corps personnel (49.6%). Free text fields from case reports were further investigated to describe specific internet sites; Grindr, Craigslist, and Adam4Adam were the most frequently specified sites. A large percentage of personnel also reported meeting sexual partners at a bar, club, or party (40.2%). Additional locations for meeting sexual partners were disclosed: 16.8% at home, 14.8% at work or school, 11.8% in other public places (book store, cinema, place of worship, shopping mall, park/rest area, restaurant, grocery store, outside), 5.4% through mutual friends, 5.0% while cruising in an automobile, and 5.2% in a bath, spa, gym, or health club. See Table 5 for additional details.

Table 5. Locations where Male Active Duty Personnel Reported Meeting their Sexual Partners, Recently Infected HIV Positive Sailors and Marines, 2010-2017

	NAVY (N=418)		MARINES CORPS (N=117)		TOTAL (N=535)	
	N	%	N	%	N	%
Internet	213	51.0	58	49.6	271	50.7
Bars/Clubs/Party	167	40.0	48	41.0	215	40.2
My Home/Partner's Home	72	17.2	18	15.4	90	16.8
Work or School	58	13.9	21	17.9	79	14.8
Other Public Place*	49	11.7	14	12.0	63	11.8
Mutual Friends	24	5.7	5	4.3	29	5.4
Baths/Spas/Gym/Health Clubs	25	6.0	3	2.6	28	5.2
Cruising in Automobile	20	4.8	7	6.0	27	5.0
Hotel or Motel	18	4.3	1	0.9	19	3.6
Other Unidentified Place	17	4.1	1	0.9	18	3.4
Escort Services	4	1.0	1	0.9	5	0.9
Refused	25	6.0	3	2.6	28	5.2
Unknown	10	2.4	1	0.9	11	2.1

*Other public place includes book stores, cinemas, place of worship, beach, shopping malls, park/rest area, restaurants, grocery stores, or outside.

Note: column totals do not equal respective cohort totals; respondents had the option to report multiple locations.

Data Source: NMCPHC SHARP Program
Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on March 30, 2018.

Over 8% of cases either refused to disclose or had no answer for case report questions regarding places where they had sex. Over three-quarters of Sailors and Marines reported sex with their partners at their own home, in their partner's home, or in another person's home; these frequencies were higher for Marines (90.8%) than for Sailors (78.0%).The second most frequently cited location of sexual contact with partners was a hotel or motel (26.5%), where these frequencies were higher for Marines (40.8%) than Sailors (24.4%). Additional locations of sexual contact included other public places (6.5%); automobile (3.4%); bar, club, or party (2.8%); and bath, spa, gym, or health club (2.2%). While the case report form defines sex as "oral, anal or vaginal contact with partners," a small percentage of personnel (0.7%) reported having sex on the internet. This result indicates the interviewer may not have provided the definition of sex, and the respondent was reporting his activity related to cybersex. Alternatively, the respondent may have stated he met his partner on the internet (as opposed to having sex on the internet), but it was miscoded on the case report form. See Table 6 for additional details.

Table 6. Locations where Male Active Duty Personnel Reported Having Sex with Partners, Recently Infected HIV Positive Sailors and Marines, 2010-2017

	NAVY (N=418)		MARINE CORPS (N=117)		TOTAL (N=535)	
	N	%	N	%	N	%
My Home/Partner's Home/Other's Home	326	78.0	89	90.8	415	77.6
Hotel or Motel	102	24.4	40	40.8	142	26.5
Other Public Place*	26	6.2	9	9.2	35	6.5
Automobile	15	3.6	3	3.1	18	3.4
Bars/Clubs/Party	13	3.1	2	2.0	15	2.8
Baths/Spas/Gym/Health Clubs	11	2.6	1	1.0	12	2.2
Other Unidentified Place	9	2.2	1	1.0	10	1.9
Work or School	7	1.7	2	2.0	9	1.7
Shelter or Project	2	0.5	1	1.0	3	0.6
Internet	4	1.0	0	-	4	0.7
Escort Services	1	0.2	0	-	1	0.2
Jail or Prison	0	-	0	-	0	-
Refused	25	6.0	3	3.1	28	5.2
Unknown	15	3.6	2	2.0	17	3.2

*Other public place includes book stores, cinemas, place of worship, beach, shopping malls, park/rest area, restaurants, grocery stores, or outside.

Note: column totals do not equal respective cohort totals; respondents had the option to report multiple locations.

Data Source: NMCPHC SHARP Program

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on March 30, 2018.

Sexual orientation was also assessed for associations with the most frequently reported locations where HIV-positive Sailors and Marines met or had sex with their partners. Two statistically significant differences in location were identified between MSM and non-MSM men. A greater proportion of MSM (62.4%) who had sex within the past 12 months reported meeting their sexual partner online, compared to 29.5% of non-MSM (χ^2 47.1, $p<0.0001$); these data indicate MSM were about twice as likely to meet their partners online than non-MSM (RR 2.1, 95% CI: 1.6-2.7). Non-MSM cited most frequently meeting their partners at a bar, club, or party (43.6%), similar to the 40.1% of MSM who also reported meeting their partners at this location (data not shown).

Additionally, the initiation of sexual partners on the internet was assessed for association with more frequently reported sexual risk behaviors, including sex with an anonymous partner and sex while intoxicated. For these behaviors, sex with an anonymous partner (χ^2 17.0, $p<0.001$) was significantly associated with initiation of sexual partners on the internet. Sex while intoxicated or high in the past 12 months (χ^2 1.8, $p>.05$) was not significantly associated with initiation of sexual partners on the internet (data not shown).

Sexual Partners

The standardized case report form documented the total number of male, female, or transgender partners in the past 12 months. Among male Sailors and Marines who reported at least one sexual partner in the past 12 months (n=476), over half (n=251, 52.7%) cited male-only partners, 142 (29.8%) had female-only partners, 69 (14.9%) reported male and female partners, and 14 reported having male and female or transgendered partners.

Sailors had a median of three sexual partners within the preceding 12 months, while Marines had a median of four sexual partners. The median was highest for those citing male and female or transgender partners at six for both Sailors (range 2-80) and Marines (range 2-17). Among those reporting male-only partners, the median number of partners was four for both Sailors (range: 1-250) and Marines (range: 1-60). The median number of partners among those reporting female-only partners was equal for Sailors (median: 2, range 1-40) and Marines (median: 2, range 1-75). See Table 6 for additional details.

Table 7. Median Number and Range of Sexual Partners among Active Duty Sailors and Marines who Reported having Sex within the Past 12 Months

	NAVY (N=369)		MARINE CORPS (N=107)	
	Median	**Range**	**Median**	**Range**
Male partners only (n=251)	4	(1 - 250)	4	(1 - 60)
Female partners only (n=142)	2	(1 - 40)	2	(1 - 75)
Male and female (n=69)	5	(2-151)	5	(2-35)
Male and female or transgender partners (n=14)	6	(2 - 80)	6	(2 - 17)
Total partners (n=476)	3	(1 - 250)	4	(1 - 75)

Note: this table includes only personnel who reported having sex within the past 12 months; those who reported zero/unknown number of partners or refused to answer are not included.

Frequencies (N) represent total number of individuals categorized by sexual identity orientation, not the total number of partners.

Data Source: NMCPHC SHARP Program

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on March 30, 2018.

Conclusion

This analysis provides a systematic and comprehensive description of risk behaviors for male DON service members recently diagnosed with HIV infection, utilizing an established behavioral reporting system in the DON. While this report adds 57 reports for 2017 for a total of 535 case reports from 2010 to 2017, the conclusions from past iterations of this report largely remain the same. MSM behavior represents a majority of HIV risk acquisition among Sailors and Marines recently infected, which is congruent with transmission risk in the United States (US) civilian population. Over 60% of MSM report using the internet to initiate sexual partners. Additionally, a large proportion of both MSM (40.1%) and non-MSM (43.6%) report meeting their partners at a bar, club, or party. As a result, these two avenues should be considered when targeting prevention programs for both populations. To achieve a reduction in HIV incidence rates among active duty Sailors and Marines, DON HIV prevention efforts should include interventions relevant for all Sailors and Marines but these must also resonate with MSM.

Limitations

Optimal response rates are essential to improve the representativeness of research cohorts and reduce the effect of measurement error, thus increasing the ability to generalize research findings.[9] The HIV case reports utilized in this study represent approximately three-quarters of all newly diagnosed infections during the study period; the remaining one quarter of HIV case reports may have been unreported due to systematic reporting errors likely to occur while establishing a new surveillance process. Participation bias may affect findings as patients may refuse to complete the entire survey; the difference of this group compared to those who complete the survey is unknown. Methods for administering the case report form may have also contributed to this bias, potentiation issues were identified with refusals based on location where the report was conducted. Further, refusal rates may be associated with certain demographic characteristics or sexual orientation; a study by Copas et al. investigating implications for measuring HIV risk found that ethnic minorities and lower occupational classes exhibited higher rates for refusal.[10]

Several categories of data contain potential issues, including possible errors in coding and incomplete/illegible/missing answers. Though the analysis adjusted for these anomalies to an extent, their potential impact on the results should be considered when interpreting the data.

Previous research indicates that HIV-positive military personnel are more likely to disclose homosexual behaviors to civilians than to military case investigators,[11] but the limited studies completed since the repeal of DADT have not evaluated the impact of the policy change on stigma around disclosure of sexual orientation or sexual behaviors. Despite the repeal of DADT, negative perceptions of MSM behavior may persist in military culture, which may affect an individual’s willingness to disclose sexual orientation or behaviors, or a medical provider’s perceived capacity to elicit, evaluate, and counsel regarding MSM risk.

Further, the data collected from the case report forms sent to the NMCPHC provided de-identified data with standardized demographic information, and thus had relatively limited information to assess additional covariates that may be associated with particular HIV-risk behaviors.

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POINT OF CONTACT

Reportable and Emerging Infections Division
The EpiData Center
Navy and Marine Corps Public Health Center 757.953.0970
WWW.NMCPHC.MED.NAVY.MIL/
usn.hampton-roads.navmcpubhlthcenpors.list.nmcphc-epi-plls@mail.mil